**ATTACHMENT 12**

**CONTAINERS**

# Table of Contents

## List of Tables

## List of Acronyms

| | |
|---|---|
| ACAMS | Automatic Continuous Air Monitoring System |
| BSA | Buffer Storage Area |
| CHB | Container Handling Building |
| CFR | Code of Federal Regulations |
| DAAMS | Depot Area Air Monitoring System |
| DPE | Demilitarization Protective Ensemble |
| ECV | Explosive Containment Room Vestibule |
| MCC | Mine Component Carrier |
| MDB | Munitions Demilitarization Building |
| MPB | Munitions Processing Bay |
| MRC | Multiple Round Container |
| ONC | Onsite Container |
| PPE | Personal Protective Equipment |
| RCRA | Resource Conservation and Recovery Act |
| SRC | Single Round Container |
| SPORT | Single Pallet Only Rocket Transporter |
| TMA | Toxic Maintenance Area |
| UPA | Unpack Area |
| UPMC | Upstairs Munitions Corridor |
| VTC | VX Test Cylinder |
| VXH | VX Hydrolysate, the liquid residue from a treatability study performed at CAMDS. |

12.1 **Applicability**

12.1.1 The munitions and bulk containers of chemical agents are considered containers (per the definition of container in R315-1-1(b) [40 CFR 260.10]). These items will be stored in the Container Handling Building (CHB), the Unpack Area (UPA), the Explosive Containment Room Vestibule (ECV), and the Upstairs Munitions Corridor (UPMC) and will be managed per the requirements of R315-8-9.6. Overpacks that contain leaking munitions/bulk containers of chemical agents and VTCs are considered containers (per the definition of container in R315-1-1(b) [40 CFR 260.10]). These items will be stored in the Toxic Maintenance Area (TMA[1]) and will be managed per the requirements of R315-8-9.6. Agent-contaminated equipment and parts as well as containerized waste, to be managed per the requirements of R315-8-9.6, may be stored in the TMA Container Storage Area. Site-generated waste may be stored in containers in the S-2 warehouse and will be managed per the requirements of R315-8-9.6.

12.2 Description of Containers

12.2.1 The following hazardous wastes (chemical agents) will be stored in the CHB, UPA, ECV, UPMC, TMA Container Storage Area, and TMA Airlock/Decon Area:

12.2.1.1 Nerve Agent (VX)

12.2.1.2 Nerve Agent, Sarin (GB)

12.2.1.3 Mustard Agents (H, HD, and HT)

12.2.2 These chemical agents are contained in rockets, land mines, artillery and mortar shells, bombs, spray tanks, and bulk containers. The munitions and bulk containers were manufactured to safely contain and store the chemical agents. VX chemical agent is also contained in VTCs.

12.2.3 The Department of the Army uses munition overpacks to store and transport the munitions and bulk containers for the time period immediately preceding demilitarization activities. As an alternative, munitions may be stored on secondary containment pallets in the UPA. The munitions are placed in the munition overpack container at the installation's storage igloos. From there, the munition overpacks are transported to the CHB as the first step in the Tooele Chemical Agent Disposal Facility (TOCDF) demilitarization process. Overpacked VTCs are delivered directly to the TMA as the first step in the demilitarization process.

12.2.4 The munition overpack is designed to provide vapor-tight containment of agent, and all seals on the overpack are impervious to agent and are able to withstand the

[1]As used in the Permit, the Toxic Maintenance Area (TMA) consists of the following three rooms: (1) the Category A room which encompasses the TMA Container Storage Area; (2) the Airlock room; and (3) the Decon room. The Airlock and Decon rooms (located adjacent to and south of the Category A room) are collectively referred to as the TMA Airlock/Decon Area and will be used for the storage of overpacked leaking munitions/ bulk containers. The TMA Airlock/Decon area is also a 90 Day Storage Area for site generated waste.

decontamination solutions. The overpack and any components mounted on the surface will fit within an envelope that is 8.5 feet by 8.5 feet by 12 feet high. The combined weight of the overpack and munition holding trays will not exceed 26,000 pounds. The material handling system in the CHB is sized to handle a 40,000-pound maximum load. This design allows for an 18,000-pound overpack, a 3,000-pound spreader bar for hoisting bar purposes, 8,000 pounds of munitions and exceeds the required safety factor of 1.25. The overpack must withstand a fire and protect the combustible and hazardous materials inside the overpack from any fire. The munitions overpack is sized to be compatible with the doors, material handling equipment, and clearances in the CHB, UPA, TMA of the Munitions Demilitarization Building (MDB). For the storage of non-leaking munitions/bulk containers, the overpack meets secondary containment requirements of R315-8-9.6.[2] For leaking munitions/bulk containers, the overpack meets primary containment requirements and is considered to be the container. In addition to the ONC overpack, munitions may be overpacked in munition specific overpacks for storage and in transportation from the installation's Chemical Surety Material Storage Area to TOCDF. Due to the various configurations of the munition specific overpacks, munitions in overpacks may be transported in an enclosed transport vehicle instead of an ONC. The munition specific overpacks meet the requirements of a container as defined in R315-1-1 [40 CFR 260.10].

12.2.5 In the S-2 Warehouse, containers (e.g., 55-gallon drums, etc.) Will be stored and will remain closed except when adding or removing waste (includes periodically monitoring the vapor space within the container). The waste stored in the S-2 warehouse will be site-generated waste, which includes, but is not limited to, the following:

12.2.5.1 dunnage (e.g., wood)
12.2.5.2 miscellaneous parts/equipment
12.2.5.3 wipe rags
12.2.5.4 incineration residue that does not meet treatment standards (i.e., residue that does not meet Land Disposal Restrictions (LDR) inorganic standards)
12.2.5.5 decontamination solution
12.2.5.6 scrubber brine and brine dryer salts
12.2.5.7 miscellaneous debris (e.g., metal and metal shavings, floor sweepings, contaminated soil, concrete, plaster, decontamination residues, etc.)
12.2.5.8 miscellaneous fluids (e.g., paint, grease, oil, solvents, hydraulic fluids, coolants, etc.)
12.2.5.9 miscellaneous solids (e.g., paper products, spill containment materials, filter residues, plastics, rubber, Personal Protective Equipment (PPE), solder, glassware, rags, etc.)
12.2.5.10 laboratory monitoring samples

12.2.6 The TMA Container Storage Area will be used to store agent-contaminated wastes in containers (e.g., 55-gallon drums). These wastes include fluids (e.g., hydraulic, cooling, waste oil) with associated clean-up material (e.g., rags, etc.), discarded PPE and Demilitarization Protective Ensemble (DPE) suits, filter media, dunnage, the waste streams identified in Table 2, Hazardous Wastes/Permitted Hazardous Waste Management Units, and equipment/parts destined for other permitted storage, treatment

[2]The types of overpacks used are On-Site Containers (ONC), Spray Tank Overpacks, and MK116 Bomb Overpacks. ONCs are used to store all munitions and bulk containers except Spray Tanks and MK116 bombs. The latter two items are stored in item-specific overpacks (also referred to as shipping containers).

and disposal.

12.2.7 If agent is detected via Automatic Continuous Air Monitoring System (ACAMS) monitoring inside a sealed[3] ONC at levels greater than 40 TWA, the leaking munitions (rockets, projectiles, mortars) will be removed from the ONCs in the TMA, decontaminated, and repackaged in the following containers:

12.2.7.1 SPORT (Single Pallet Only Rocket Transporter) - Stainless steel box (approximately 8 feet long, 3 feet wide, and 3 feet high) with vacuum pump exhausted through carbon canister. Used to store projectiles and M55 rockets and associated pallets.

12.2.7.2 SRC (Single Round Container) - Steel container used to store M55 rockets, 8-inch projectiles and 155 mm projectile.

12.2.7.3 Propelling Charge Container - Steel container used to store 105 mm projectile w/cartridge case, M55 warhead, 155 mm projectiles, 4.2 inch mortar, and 8 inch projectiles.

12.2.7.4 M1 Gas Identification Set Container - Steel container with flange, gasket, and bolted lid. Used to store 105 mm projectiles, 4.2-inch mortars, or M55 rockets.

12.2.7.5 MRC (Multiple Round Container) – A cylindrical steel container used to transport miscellaneous recovered chemical warfare materiel. The MRCs come in five sizes ranging from seven inches diameter to 30 inches diameter. VTCs are overpacked in nine-inch diameter MRCs.

12.2.8 After repackaging, the above containers may be stored in the TMA Container Storage Area until transfer to the Explosion Containment Vestibule (ECV) or Upper Munitions corridor (UPMC) for processing.

12.2.9 Agent-contaminated equipment (e.g., pumps, valves, etc.) and parts (e.g., pipe fittings, etc.) to be decontaminated/repaired and reused will be stored in the TMA Container Storage Area. Since this equipment and these parts are to be reused, they are not classified as hazardous waste and will not be containerized. However, the equipment and parts will be stored within the TMA Category A secondary containment system until they can be decontaminated, repaired, or both.

12.2.10 The hand dollies to be used in the TMA Container Storage Area are properly sized to manage the containers, equipment, and parts to be stored.

12.2.11 With the exception of the VTC overpacks that will be unpacked in the TMA, the overpacks will be transported to the Unpack Area in the MDB/CHB Transition Area. The munitions and bulk containers will then be removed from each overpack and fed into the ECV, with the exception of VTCs, which will be directly fed to the MPF. The munitions and bulk containers are described further in Attachment 2 (Waste Analysis Plan).

## 12.3 Description of Container Handling Building and Unpack Area

[3]The requirements for overpacks that fail the seal test are described in Permit Condition III.G.4.

12.3.1 The CHB off-loading area design was based on having two overpacks per transport truck.

12.3.2 The CHB is a steel-frame building with insulated metal roofing and insulated siding panels. The CHB is divided into six functional areas, as described in the following paragraphs.

12.3.2.1 The Overpack Loading/Off-Loading Areas provide three separate, covered locations, each sized for one 55-foot flatbed truck. There are two areas, one on the northeast end and one on the northwest end of the CHB, that handle multi-munition overpacks, MK-116 bomb containers, and spray tank containers. The third area near the overpack elevators, supports simultaneous munitions co-processing. Empty overpacks are loaded on the transport trucks at these same three locations.

12.3.2.2 The Overpack Storage Area is sized to store 48 overpacks in two bays, each with four rows of overpacks that are stored six deep.

12.3.2.3 The Corridor provides an enclosed structure for the transport of the overpacks from the Overpack Storage Area to the Container Handling Building/Munitions Demilitarization Building (CHB/MDB) Transition Structure. The Corridor has a retractable roller conveyor system to transport the overpacks from the storage area to the overpack lifts.

12.3.2.4 The Container Handling Building/Munitions Demilitarization Building Transition Structure provides the means to raise the overpacks to the second floor of the MDB, near the Unpack Area. Containers (munitions, bulk containers) will be stored in the Unpack Area in this transition area between the CHB and the MDB. Permitted storage will be limited to the storage of containers inside of overpacks or on secondary containment pallets. For non-leaking munitions and bulk containers the overpack meets secondary containment requirements of R315-8-9.6. For leaking munitions and bulk containers, secondary containment is provided by the coated, reinforced concrete floor, sumps, and perimeter curbs/walls. Storage of the containers and associated overpacks will occur on the three conveyors located in the north end of the UPA. This area also provides a means to monitor the overpacks for leakers, provides an unpack station, and provides a means to return empty overpacks to the ground level for temporary storage in the CHB.

12.3.2.5 The Mechanical Equipment Room is sized to hold the mechanical equipment and the electrical equipment room is sized to hold the electrical equipment for the CHB. There is a receiving area located at the Overpack Storage Area to provide a location for personnel to handle and process inventory storage transfer documents.

12.3.2.6 The floor of the Container Handling Building is constructed of reinforced concrete. The floor of the second level of the CHB/MDB Transition Structure is metal deck with concrete. The number of construction and expansion joints has been kept to a minimum. All joints between floors and walls are covered and sealed.

12.3.3 As an added precaution, permanent agent monitors are located at the CHB storage areas. Agent detection monitors can be brought to the outside of the building for intermittent use as required.

12.4 **Description of the TMA**

12.4.1 The TMA is located within the MDB and a portion of the Category A section of the TMA is designated as the TMA Container Storage Area. This TMA Container Storage Area is sized to store forty 55-gallon drums. The TMA Airlock/Decon Area is sized to store two overpacks. Secondary containment is provided by a coated, reinforced concrete floor, sumps, and perimeter curbs/walls. The number of construction and expansion joints has been kept to a minimum in these areas and the floor, sumps, and curbs have been coated with an epoxy based coating. As an added precaution, there are permanent agent monitors located throughout the MDB.

## 12.5 Description of the S-2 Warehouse

12.5.1 The S-2 Warehouse enclosure is a steel-frame building with insulated metal roofing and insulated siding panels. This storage area is sized to store 704 55-gallon drums (double stacked). Secondary containment for containers with free liquids will be provided by portable secondary containment pallets. Although not part of the secondary containment system, the floor of the S-2 Warehouse is constructed of reinforced concrete and is coated. The building is equipped with a recirculation fan, duct, and full-time Depot Area Air Monitoring System (DAAMS) monitoring.

## 12.6 Description of the ECV Container Storage Area

12.6.1 The ECV Container Storage Area encompasses and is limited to the ECV located in the MDB. Munitions and bulk containers are stored on the conveyors in this room and the munitions are also stored on the reject systems located in this room. Non-leaking mines may be stored on the cart or table used to segregate and transport mines within the ECV. Additionally, leaking or rejected projectiles or mortars that have been placed in overpacks may be stored on the floor in this room. Likewise, mine drums containing non-leaking mines or leaking mines may be stored on conveyors in this room or on the ECV floor. Storage of mines, in or out of drums, and projectiles or mortars, in or out of overpacks, shall not exceed the Maximum Allowable Number specified in Condition III.C.3. Secondary containment is provided by a coated, reinforced concrete floor, sumps, and perimeter curbs/walls. The number of construction and expansion joints has been kept to a minimum in this area and the floor, sumps, and curbs have been coated.

## 12.7 Description of UPMC Container Storage Area

12.7.1 The UPMC Container Storage Area encompasses and is limited to the UPMC located in the MDB. Munitions and bulk containers will be stored on the conveyors and charge car in this room and munitions will also be stored on the reject tables located in this room. Also, up to two ton containers may be stored on the floor in this room. Secondary containment will be provided by a coated, reinforced concrete floor, sumps, and perimeter curbs/walls. The number of construction and expansion joints has been kept to a minimum in this area and the floor, sumps, and curbs have been coated.

## 12.8 Container Management Practices (CHB/UPA, S-2 Warehouse, and TMA)

12.8.1 Munitions destined for demilitarization are designated by the Department of the Army. Designated munitions are transported to the CHB at a rate compatible with the operating schedule of the facility.

12.8.2 All containers present in the CHB will contain the same agent.

12.8.3 The CHB is used to store munitions prior to demilitarization operations in the MDB. At the installation's storage igloo, the munitions are packed into overpacks that are positioned on transport trucks. The number of trucks per day and the loading configuration in the overpacks will differ with the type of munition and the corresponding munition processing rates.

12.8.4 When the transport truck enters the Tooele Chemical Agent Disposal Facility perimeter, the truck will move to one of the three off-loading areas at the CHB. The transport truck moves forward at each north-end offloading area under the bridge crane to unload the overpack containers. The operators secure the hoist to the overpack being unloaded by using the handheld control box. This method allows overpack connections to be made remotely, without the operator having to climb on top of the overpack to attach slings or fasteners. Trucks at the west dock are unloaded by forklift or bridge crane.

12.8.5 The offloading crew will control the flow of overpacks so that the overpacks will be managed on a first-in/first-out basis and that overpacks will not normally remain in the CHB for more than 24 hours prior to processing. In accordance with the Utah Administrative Code R315-8-9.5, the contents of those overpacks that remain in the CHB for more than 1 week will be monitored on a weekly basis for agent leakage through an agent monitor port in the overpack.

12.8.6 Overpack deliveries to the CHB are limited to the daylight hours. Overpack movement from the CHB to the MDB continues 24 hours per day, seven days per week.

12.8.7 Overpacks from a designated area in the CHB storage area pass onto a right-angle transfer conveyor that puts them on the corridor conveyor, which travels in a N-S direction from the storage bays to the overpack lifts. The overpack is moved into the east overpack lift and transferred to the second floor of the CHB/MDB Transition Area. From here, the overpack is moved in sequence onto two conveyors, connected in series, which form a portion of the UPA container storage area. The first conveyor (delivery and monitoring station) receives the overpack from the lift and is used when monitoring the overpack for agent. The second conveyor (unpack and return station) is for unpacking the contents of the overpack and for "bolt-up" before return to the storage area.

12.8.8 Overpacks with leaking munitions/bulk containers may be stored in the UPA or moved to the TMA Airlock/Decon Area. If a leaker is found in the UPA during the monitoring procedure and the agent levels are determined, via ACAMS monitoring, to be greater than 40 TWA, the sealed[4] overpack is moved forward with an overhead bridge crane and placed on the holding conveyor which feeds the west lift (bypassing the unpack area). The sealed overpack is conveyed into the west lift and down to the first floor where a forklift or transport truck takes it to the TMA. In the TMA the leaking munitions/bulk containers may be stored in the Airlock/Decon Area and then unpacked, decontaminated, and loaded onto cradles for processing (bulk containers) or reconfigured for overpacking (munitions). The leaker munition overpacks are then transported (via the conveyor system) to the ECV for unpacking by operators in appropriate PPE. The overpack is

[4]The requirements for overpacks that fail the seal test are described in Permit Condition III.G.4.

decontaminated and monitored to ensure that the decontamination was adequate, and it is returned to the CHB. Details for handling leaking munitions and bulk containers are given in Attachment 9 (Contingency Plan). The holding conveyor will also be used to store empty overpacks prior to exiting the UPA. If munitions or bulk containers cannot be processed through the UPA within 24 hours of removal from the associated overpack (e.g, downstream operations in the MDB shut down), then the munitions (except for rockets in the rocket metering input assemblies) and bulk containers will either: (1) be placed into an overpack that may be stored on any of the three conveyors in the UPA; or (2) be placed onto secondary containment pallets for storage in the UPA. If placed into an overpack, the overpack will then be closed and the munitions or bulk containers will be considered to be in permitted storage.

12.8.9 The S-2 Warehouse will be used to store site-generated waste. Trucks at the S-2 Warehouse building will be unloaded at the east or west end of the building by forklift or hand dolly. While in the S-2 Warehouse, the containers will remain closed except when adding or removing waste (includes periodically monitoring the vapor space within the container). Container movement to and from the S-2 Warehouse may occur 24 hours per day, seven days per week.

12.8.10 If a leaking container is found in the S-2 Warehouse, the leaking container is placed into a larger container that is subsequently closed. This larger container then provides primary containment. The larger container, along with the enclosed leaking container, will be stored in the S-2 Warehouse, transported to the MDB for processing, or transferred off-site for treatment, disposal, or both. If this larger container is stored in the S-2 Warehouse, it will be placed on a secondary containment pallet with a secondary containment capacity greater than or equal to the volume of the enclosed leaking container.

12.8.11 The TMA will also be used for the storage, decontamination, and maintenance of parts and equipment that are contaminated with agent. The maintenance philosophy will be to repair in place, if possible, all potentially contaminated items requiring servicing. If repair time is excessive or replacement is not feasible, the item will be removed from its service area and sent to the TMA. Appropriate workbenches, vises, hand and power tools, hydraulic presses, drill presses, steam cleaner, and other equipment will be available as needed for maintenance work. In the Category A area of the TMA, items are stored until processed. Processing in the Category A area involves disassembly by personnel in appropriate PPE to ensure that adequate decontamination procedures can be employed. After decontamination, these items are transferred to the adjacent TMA Category C area for repair and maintenance.

12.8.12 In addition to management of contaminated equipment and parts, a portion of the Category A area in the TMA (i.e., the TMA Container Storage Area) will be used to store wastes such as contaminated hydraulic fluid, waste oil, and contaminated cooling fluid with associated clean-up material (e.g., rags, etc.). Contaminated dunnage, filter media, and equipment/parts may also be stored in containers in the TMA Container Storage Area until this waste can be processed. Discarded PPE and DPE suits may be compacted (i.e., via a compactor located within the TMA secondary containment system) and containerized and stored in the TMA Container Storage Area until this waste can be processed. The TOCDF may periodically decontaminate wastes (e.g., DPE suits) in this area.

12.8.13 Leaking munitions/bulk containers will also be managed in the TMA. Leaking munitions/bulk containers will be stored in the TMA Airlock/Decon Area. The munitions (rockets, projectiles, mortars) with agent levels greater than 40 TWA, as determined by ACAMS monitoring, will be removed from the ONCs, decontaminated, and then repackaged in SPORTs, SRCs, Propelling Charge Containers, and M1 Gas Identification Set Containers. After repackaging, these containers may be stored in the TMA Container Storage Area until transfer to the ECV for processing. Leaking bulk containers will be removed from the ONCs, decontaminated, loaded onto cradles, and transferred to the Munitions Processing Bay (MPB) for processing.

12.8.14 Movement of containers, equipment, and parts to and from the TMA may occur 24 hours per day, seven days per week.

12.8.15 VTCs, contained in MRC overpacks, will be received from DCD custody directly to the TMA. There, the VTC overpacks will be removed from their shipping crates, the VTCs individually removed from the MRCs, and loaded vertically into modified projectile trays for sampling and transfer to the MPF.

## 12.9 Container Management Practices (MDB)

12.9.1 As described above, overpacks (ONCs, Spray Tank Overpacks, and MK-116 Bomb Overpacks), which contain munitions or bulk containers, will be transferred from the CHB to the UPA. While in the UPA and sealed in the overpacks or placed on secondary containment pallets, the munitions and bulk containers will be considered to be in permitted storage. For non-leaking munitions and bulk containers, the overpack provides secondary containment. For leaking munitions and bulk containers, the overpack provides primary containment and the coated, reinforced concrete floor, sumps and perimeter walls/curbs provide secondary containment. The overpacks will remain on the conveyors identified in Table 12-1. The munitions and bulk containers will be removed from the overpacks in the UPA and will be placed on conveyors that feed into the ECV. If processing through the UPA within 24 hours is not possible (e.g., downstream equipment unexpectedly shuts down, etc.), then the munitions or bulk containers will be placed into storage by placing the munitions or bulk containers onto a secondary containment pallet or into an overpack which will be subsequently closed and all bolts tightened. The only exception to this scenario (i.e., placement back into overpack or onto a secondary containment pallet) would be leaving in place any rocket(s) that are located in the UPA rocket metering input assemblies when operations shut down. To minimize that handling of these rockets and the associated risks, these munitions may remain “in process” in the rocket metering input assemblies until operations resume.

12.9.2 During routine operations, munitions will be conveyed through the ECV into one of the Explosion Containment Rooms (ECR) for processing. Likewise, the bulk containers will be conveyed through the ECV into the UPMC for storage prior to processing in the MPB. However, if downstream equipment is shut down, storage of this containerized waste (munitions and bulk containers) in the ECV may be necessary since feeding back to the UPA for storage may not be feasible or desirable.

**Table 12-1**
**Maximum Number of Containers to be Stored in the UPA[2, 3]**

| Description | Tag # | Length | # of ONCs or Overpacks (see Note 1) | Munition Type | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 155- mm Proj. | | M55 Rocket | Mine[4] | Ton Cont. | Spray Tank | 4.2 inch Mortar | 105 mm Proj. | MK-116 Bomb |
| Delivery and Monitor Station Conv. No. 39Unpack and Return Station Conveyor No. 40 | CHB-CNVM-139<br>CHB-CNVM-140 | 24'-4"<br>24'-4"<br>48'-8" | 7 (ONCs)<br>9 (Spray Tk)<br>29 (MK-116) | 672 | | 210 | Note 4 | 14 | 9 | 1,344 | 672 | 29 |
| Second Floor Conveyor No. 41 | CHB-CNVM-141 | 18'-4" | 2 (ONCs)<br>3 (Spray Tk)<br>11 (MK-116) | 192 | | 60 | Note 4 | 4 | 3 | 384 | 192 | 11 |
| TOTAL | | | 9 (ONCs)<br>12 (Spray Tk)<br>40 (MK-116) | 864 | | 270 | Note 4 | 18 | 12 | 1,728 | 864 | 40 |

1. Calculated by dividing the length of the conveyor(s) by the width of an ONC or Overpack (quotient rounded down to the nearest integer). The width of an ONC is 74 inches (6'-2"), the width of each Spray Tank Overpack is 62 inches (5'-2"), and the width of each MK-116 Bomb Overpacks is 20 inches.
2. Calculated by multiplying the number of overpacks by the maximum number of munitions or containers per overpack. The number of munitions or containers per overpack is provided in Condition III.C.3 of this Permit.
3. Munitions may be stored on secondary containment pallets instead of inside overpacks. If this occurs, the total number of containers stored in the UPA (i.e., those stored in overpacks plus those stored on secondary containment pallets) shall not exceed the quantities listed above.
4. The TOCDF may store in the UPA 162 mines on either secondary containment pallets or in mine drums placed on secondary containment pallets. Mine Component Carriers (MCCs) may also be stored on the secondary containment pallets. In addition, a maximum of 162 mines may be stored in ONCs in the UPA. The total number of mines stored in the UPA shall not exceed 324.

12.9.3 Storage in the ECV is also needed for projectiles or mortars that are rejected due to incomplete disassembly. These rejected munitions are stored in the two reject systems in the ECV, stored on the ECV floor, or if leaking, are overpacked and stored on the ECV floor. When stored on the ECV floor, the munitions or overpacked munitions shall be elevated to avoid contact with standing liquid. To facilitate operations, these rejected projectiles may need to remain in the reject systems for an extended period of time. The reject systems and conveyors in the ECV that will be used for storage are identified in Table 12-2.

12.9.4 In addition to the storage activities described above, other activities (e.g., management of leaking munitions, manual disassembly of projectiles, etc.) will occur in the ECV or UPMC. Regardless of the different types of activities that occur in the ECV or UPMC, only the containerized waste on conveyors, the charge car, the reject systems, the ECV floor, or the two ton containers that may be stored on the UPMC floor will be considered to be in permitted storage. The presence of other containerized waste generated from management of munitions in the ECV will be uncommon, will correspond to relatively small amounts, and only will be necessary for a maximum of 24 hours. Therefore, the volume of these other wastes will not contribute to the volume of containerized waste in permitted storage (i.e., when demonstrating compliance with permitted capacity restraints).

12.9.5 The munitions will be transferred from the ECV into the ECRs for processing. The processing that occurs in the ECRs is considered to be treatment regulated under R315-8-16 [40 CFR 264, Subpart X]. The treatment operations performed by the miscellaneous units located within the ECRs are described in Attachment 14 (Demilitarization Miscellaneous Treatment Units). If equipment in the ECRs or downstream of the ECRs shuts down, any munitions, ECR maintenance residues, or munition components being processed in the ECRs may remain “in process” in the ECRs until the equipment in question is operational. Alternatively, facility personnel will don appropriate PPE and physically retrieve the munitions or munition components from the ECRs and manually place the item(s) into SPORTs or SRCs for subsequent storage in the TMA Container Storage Area or TMA Airlock/Decon Area.

12.9.6 The bulk containers from the ECV and the partially processed munitions from the ECRs will be transferred to the UPMC for storage prior to processing in the MPB. These munitions and bulk containers will be considered to be closed and will have good integrity since, at this point in the process, agent containment has not been compromised. If bulk containers are transferred from the MPB to the UPMC for storage after agent containment has been compromised, then the holes will be sealed (e.g., plastic with tape) to ensure containment of agent emissions. Therefore, the waste stored in this area is considered to be containerized and this room is a container storage area. Two ton containers may be stored on the UPMC floor. Otherwise, container storage in the UPMC storage area will be limited to those containers stored on the charge car, the conveyors, and the reject tables located within the UPMC as identified in Table 12-3.

**Table 12-2**
**Maximum Number of Containers to be Stored in the ECV**

| Description[1] | Tag # | Length (in ECV) | Munition Type | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 155 mm Projectile | | M55 Rocket | Mine[5, 6] | Ton Container | Spray Tank[4] | 4.2 inch Mortar | 105 mm Projectile | MK-116 Bomb |
| Tray Input Bypass Conveyor No.2 (A)Bypass Conveyor No.3 (A) (See Note 3) | MMS-CNVP-103 MMS-CNVP-105 | 8'-4" 14'-9" 23-1" | N/A | | N/A | N/A | 2 | N/A | N/A | N/A | 2 |
| Projectile/Mortar Input Conveyor No. 5 (A)[2] | PHS-CNVM-109 | 24'-1" | 10 | | N/A | N/A | N/A | N/A | 13 | 9 | N/A |
| Rocket/Mine Input Conveyor No. 2 (A)[2] | MMS-CNVM-103 | 24'-1" | N/A | | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Projectile/Mortar Input Conveyor No. 5 (B)[2] | PHS-CNVM-110 | 24'-1" | 10 | | N/A | N/A | N/A | N/A | 13 | 9 | N/A |
| Rocket/Mine Input Conveyor No. 2 (B)[2] | MMS-CNVM-104 | 24'-1" | N/A | | 3 | Note 6 | N/A | N/A | N/A | N/A | N/A |
| Spray Tank Conveyor No. 2 (B)Bypass Conveyor No. 3 (B)(See Note 3) | MMS-CNVP-104 MMS-CNVP-106 | 4'-8" 18'-2" 22'-10" | N/A | | N/A | Note 6 | 2 | 1 | N/A | N/A | 2 |
| Projectile Reject System (A) | PHS-REJC-101 | N/A | 4 | | N/A | N/A | N/A | N/A | 6 | 6 | N/A |
| Projectile Reject System (B) | PHS-REJC-102 | N/A | 4 | | N/A | N/A | N/A | N/A | 6 | 6 | N/A |
| TOTAL | | | 28[7] | | 3[7] | Notes 6, 7 | 4 | 1 | 38[7] | 30[7] | 4 |

1. (A) = A line, (B) = B line
2. The values were calculated by dividing the length of the conveyor by the length of each munition (quotient rounded down to the nearest integer). The length of each munition is as follows: 155 mm projectile - 2.2 ft; M55 Rocket - 6.7 ft; Mine - 1.1 ft; 4.2 inch Mortar - 1.8 ft; 105 mm Projectile - 2.6 ft.
3. With the exception of the spray tanks (see Note 4 below), the values were calculated by dividing the total length of both conveyors by the length of a cradle/tray (quotient rounded down to nearest integer) and multiplying by the number of bulk containers per cradle/tray. The length of a cradle/tray is 9 ft and one cradle/tray can hold the following quantities: 1 MK-116 bomb; or 1 Ton Container.
4. Due to the length of the spray tanks (approximately 16') and the smaller airlock associated with Line A, spray tanks can only be fed by way of line B and only one spray tank can be stored in the ECV.
5. Only ECR B and Line B (MMS-CNVM-104, MMS-CNVP-104, MMS-CNVP-106) will be used for mine processing. Both mines and the MCCs used to transport/store fuzes and activators will be stored on conveyors
6. MCCs and leaking or non-leaking mines may be stored in the ECV (e.g., on conveyors, the cart, the table, the floor). Leaking mines will be stored in mine drums. Each of these mine drums may also contain 3 activators, 3 fuzes, contaminated packing material and PPE. The total number of mines stored in the ECV shall not exceed 60.
7. The munitions identified may be stored on the conveyors or reject systems as indicated above or on the floor of the ECV. When stored on the floor, they shall be elevated as necessary to prevent contact with standing liquids.

## Table 12-3
## Maximum Number of Containers to be Stored in the UPMC

| Description[1] | Tag # | Length | Munition Type | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 155 mm Projectile | VX H 5-Gal Container | M55 Rocket | Mine | Ton Container | Spray Tank[4] | 4.2 inch Mortar | 105 mm Projectile | MK-116 Bomb |
| Charge Car[3] | MMS-CHRG-101 | 12'-0" | 48 | 1 | N/A | N/A | 1 | 1 | 96 | 96 | 1 |
| Reject Table (A) | PMD-REJC-101 | N/A | 5 | N/A | N/A | N/A | N/A | N/A | 7 | 7 | N/A |
| Reject Table (B) | PMD-REJC-102 | N/A | 5 | N/A | N/A | N/A | N/A | N/A | 7 | 7 | N/A |
| Projectile Output Conveyor No. 4 (A)[2] | PHS-CNVM-107 | 9'-0" | 4 | N/A | N/A | N/A | N/A | N/A | 5 | 3 | N/A |
| Projectile Tilting Conveyor (A)[2] | PHS-CNVX-101 | 14'-3" | 27 | N/A | N/A | N/A | N/A | N/A | 40 | 41 | N/A |
| Projectile Output Conveyor No. 4 (B)[2] | PHS-CNVM-108 | 9'-0" | 4 | N/A | N/A | N/A | N/A | N/A | 5 | 3 | N/A |
| Projectile Tilting Conveyor (B)[2] | PHS-CNVX-102 | 24'-3" | 47 | N/A | N/A | N/A | N/A | N/A | 69 | 71 | N/A |
| Bypass Conveyor No. 4 (A)<br>Bypass Indexing Hydraulic Conveyor (A)<br>Tray Discharge Conveyor (A)<br>(See Note 3) | MMS-CNVP-107<br>MMS-CNVP-109<br>MMS-CNVP-111 | 23'-6"<br>20'-0"<br>15'-4"<br>58'-10" | 288 | 6 | N/A | N/A | 6 | N/A | 576 | 576 | 6 |
| Buffer Storage Conveyor No. 6[3] | MMS-CNVB-106 | 12'-0" | 48 | 1 | N/A | N/A | 1 | 1 | 96 | 96 | 1 |
| Buffer Storage Conveyor No. 5[3] | MMS-CNVB-105 | 12'-0" | 48 | 1 | N/A | N/A | 1 | 1 | 96 | 96 | 1 |
| Buffer Storage Conveyor No. 4[3] | MMS-CNVB-104 | 12'-0" | 48 | 1 | N/A | N/A | 1 | 1 | 96 | 96 | 1 |
| Buffer Storage Conveyor No. 3[3] | MMS-CNVB-103 | 12'-0" | 48 | 1 | N/A | N/A | 1 | 1 | 96 | 96 | 1 |
| Buffer Storage Conveyor No. 2[3] | MMS-CNVB-102 | 12'-0" | 48 | 1 | N/A | N/A | 1 | 1 | 96 | 96 | 1 |
| Buffer Storage Conveyor No. 1[3] | MMS-CNVB-101 | 12'-0" | 48 | 1 | N/A | N/A | 1 | 1 | 96 | 96 | 1 |
| Bypass Conveyor No. 4 (B)<br>Bypass Indexing Hydraulic Conveyor (B)<br>Tray Discharge Conveyor (B)<br>(See Note 3) | MMS-CNVP-108<br>MMS-CNVP-110<br>MMS-CNVP-112 | 23'-6"<br>20'-0"<br>15'-4"<br>58'-10" | 288 | 6 | N/A | N/A | 6 | 3 | 576 | 576 | 6 |
| TOTAL | | | 1,004 | 19 | N/A | N/A | 19[5] | 10 | 1,957 | 1,956 | 19 |

1. (A) = A line, (B) = B Line
2. The maximum number of projectiles/mortars for the Projectile Output Conveyors was calculated by dividing the length of the conveyor by the length of each munition (quotient rounded down to the nearest integer). The length of each munition is as follows: 155 mm Projectile - 2.2 ft; 4.2 inch Mortar - 1.8 ft; 105 mm Projectile - 2.6 ft. The maximum number of projectiles/mortars for the Projectile Tilting Conveyors was calculated by dividing the length of the conveyor by the width of each munition (quotient rounded down to the nearest integer). The width of each munition is as follows: 155 mm Projectile - 0.51 ft; 4.2 inch Mortar - 0.35 ft; 105 mm Projectile - 0.34 ft.
3. With the exception of spray tanks (see Note 4 below), the maximum number of containers was calculated by determining the number of cradle/trays (length of conveyor(s) divided by the length of cradle/tray (9 ft) rounded down to nearest integer) and multiplying this number by the number of munitions or bulk containers per cradle/tray. One cradle/tray can hold the following quantities: 1 MK-116 bomb; 1 Ton Container; 48 155-mm projectiles; 96 105-mm projectiles; or 96 4.2-inch mortars.
4. Due to the length of the spray tanks (approximately 16'), spray tanks overhang the 9'-long cradle/tray and can only be fed by Line B. One spray tank can be stored on the munition charge car and one spray tank can be stored on each buffer storage conveyor. The maximum number of spray tanks that can be stored on conveyors MMS-CNVP-108, 110, and 112 was calculated by dividing the total length of conveyors (58'-10") by 16' (length of spray tank - quotient rounded down to nearest integer).
5. Up to two of the 19 ton containers may be stored on the UPMC floor.

12.9.7 The containers (munitions and bulk containers) will be transferred from the UPMC into the MPB for processing. The processing that occurs in the MPB is considered to be treatment regulated under R315-8-16 [40 CFR 264, Subpart X]. The treatment operations performed by the miscellaneous units located within the MPB are described in Attachment 14 (Demilitarization Miscellaneous Treatment Units). If the equipment in the MPB or downstream of the MPB shuts down, any bulk containers, munitions, or associated components being processed in the MPB may remain "in process" in the MPB until the equipment in question is operational. Alternatively, facility personnel will don appropriate PPE and physically retrieve munitions or munition components from the MPB and manually place the item(s) into SPORTs or SRCs for subsequent storage in the TMA Container Storage Area, the TMA Airlock/Decon Area, or both. Likewise, any bulk containers that may have been rinsed in accordance with the special handling procedures specified in Attachment 14 may remain "in process" in the MPB until any analytical results of the rinse material are received and evaluated.

12.9.8 The waste generated by the MPB treatment units will be "newly generated" and will have been drained of agent in the MPB (approximately 95% of agent is removed). This waste will be transferred to the downstairs Buffer Storage Area (BSA) which will be operated as a 90-day accumulation unit (containment building) in compliance with the applicable portions of R315-5-3.34 [40 CFR 262.34] and R315-7-29 [Subpart DD of 40 CFR 265]. The waste will be removed from the BSA and placed on a charge car in the downstairs munitions corridor. The waste will then be transferred to the MPF for thermal treatment. Generally, storage in the downstairs munitions corridor will not be necessary since waste will only be placed on the charge car and transferred through the downstairs munitions corridor when the MPF is operational. If the MPF should shut down while the waste is in transit in the downstairs munition corridor, then the waste will be transferred back to the BSA for storage or the downstairs munitions corridor will be operated as a 90-day accumulation unit (containment building) in compliance with the applicable portions of R315-5-3.34 [40 CFR 262.34] and R315-7-29 [Subpart DD of 40 CFR 265].

12.9.9 The maximum number of containers that can be stored on the various conveyors in the UPA is calculated in Table 12-1. The corresponding volume of agent that can be stored in the UPA is calculated in Table 12-4. The maximum volumes of the different agents to be stored in the UPA correspond to an operating scenario where ONCs with ton containers are stored on the conveyors in the UPA. As shown in Table 12-4, the maximum amount of agent storage is 3,424 gallons for agent VX, 2,972 gallons for agent GB, and 2,880 gallons for mustard agent.

**Table 12-4**
**Volume of Agent Stored in UPA, ECV and UPMC**

| MunitionType | Agent | Weight (lbs) | Density ($lb/ft^3$) | Volume (gal/container) | UPA | | ECV | | UPMC | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | # of Containers | Volume (Gal) | # of Containers | Volume (Gal) | # of Containers | Volume (Gal) |
| 155-mm Projectile | H | 11.7 | 79.49 | 1.1 | 864 | 951 | 28 | 31 | 1,004 | 1,105 |
| | GB | 6.5 | 67.97 | 0.72 | 864 | 618 | 28 | 20 | 1,004 | 718 |
| | VX | 6.3 | 62.93 | 0.75 | 864 | 647 | 28 | 21 | 1,004 | 752 |
| M55 Rocket | GB | 10.7 | 67.97 | 1.2 | 270 | 318 | 3 | 4 | N/A | N/A |
| | VX | 10.0 | 62.93 | 1.2 | 270 | 321 | 3 | 4 | N/A | N/A |
| Mine | VX | 10.5 | 62.93 | 1.2 | 324 | 404 | 60 | 72 | N/A | N/A |
| Ton Containers | GB | 1,500 | 67.97 | 165.1 | 18 | 2,972 | 4 | 660 | 19 | 3,137 |
| | HD | 1,700 | 79.49 | 160 | 18 | 2,880 | 4 | 640 | 19 | 3,040 |
| | VX | 1,600 | 62.93 | 190.2 | 18 | 3,424 | 4 | 761 | 19 | 3,614 |
| Spray Tank | VX | 1,356 | 62.93 | 161.2 | 12 | 1,934 | 1 | 161.2 | 10 | 1,612 |
| 4.2-inch Mortar | HD | 6.0 | 79.49 | 0.6 | 1,728 | 976 | 38 | 22 | 1,957 | 1,105 |
| | HT | 5.8 | 79.49 | 0.5 | 1,728 | 943 | 38 | 21 | 1,957 | 1,068 |
| 105-mm Projectile | GB | 1.63 | 67.97 | 0.2 | 864 | 155 | 30 | 5 | 1,956 | 351 |
| MK-116 Bomb | GB | 347 | 67.97 | 38.2 | 40 | 1,528 | 4 | 153 | 19 | 726 |

12.9.10 The maximum number of containers that can be stored in the ECV is calculated in Table 12-2. The corresponding volume of agent that can be stored in the ECV is calculated in Table 12-4. The maximum volumes of the agents to be stored in the ECV correspond to various operating scenarios where munition and bulk containers are being co-processed and a shut down of downstream equipment occurs. Maximum agent VX storage occurs when mines and ton containers are stored. The corresponding permitted capacity is 833 gallons [761 gallons (VX, ton containers) +72 gallons (VX, mines) = 833 gallons]. Likewise, the maximum agent GB storage occurs when ton containers and 155-mm projectiles are stored. The corresponding permitted capacity is 680 gallons [660 gallons (GB, ton container) + 20 gallons (GB, 155-mm projectile) = 680 gallons]. Finally, the maximum mustard agent storage occurs when ton containers and 155-mm projectiles are stored. The corresponding permitted capacity is 671 gallons [640 gallons (HD, ton container) + 31 gallons (H, 155-mm projectile) = 671 gallons].

12.9.11 The maximum number of containers that can be stored in the UPMC is calculated in Table 12-3. The corresponding volumes of agent that can be stored in the UPMC are calculated in Table 12-4. The maximum volumes of the agents to be stored in the UPMC correspond to various operating scenarios where munition and bulk containers are being co-processed and a shut down of downstream equipment occurs. Maximum agent VX storage occurs when 155-mm projectiles and ton containers are stored. The corresponding permitted capacity is 4,366 gallons [3,614 gallons (VX, ton containers) +752 gallons (VX, 155-mm projectiles) = 4,366 gallons]. Likewise, maximum agent GB storage occurs when 155-mm projectiles and ton containers are stored. The corresponding permitted capacity is 3,855 gallons [3,137 gallons (GB, ton containers) +718 gallons (GB, 155-mm projectiles) = 3,855 gallons]. Maximum mustard agent storage occurs when 155-mm projectiles and/or 4.2-inch mortars and ton containers are stored. The corresponding permitted capacity is 4,145 gallons [3,040 gallons (HD, ton containers) +1,105 gallons (H, 155-mm projectiles or HD, 4.2-inch mortars) = 4,145 gallons].

## 12.10 Secondary Containment System Design and Operation (CHB and UPA)

12.10.1 For non-leaking munitions and bulk containers, the munition shell and the bulk container are the primary containment device.

12.10.2 Secondary Containment is provided by the ONC or overpacks, and leak detection is accomplished by agent monitoring in the overpacks. The overpack is designed to provide vapor-tight containment of agent. All seals on the overpack are impervious to agent and are able to withstand the decontamination solutions. The overpack provides containment for all munitions and will not be opened in the CHB, CHB corridor, or lift areas.

12.10.3 The CHB and the UPA provide the third level of containment for non-leaking munitions and bulk containers. These buildings are also monitored for agent. Plans and dimensions for the CHB and the UPA are given in Attachment 11 (General Facility Drawings).

12.10.4 The munitions and bulk containers are stored in munition overpacks so that the potential for run-on contacting the containers is minimized. For the CHB, the floor is sloped a minimum of 1/8-inch per linear foot to provide proper drainage of the facility. For the UPA, the floor is sloped a minimum of 1/16-inch per linear foot to provide proper drainage. The floor is constructed of concrete. Curbing, floor drains, and sumps are used

to collect uncontaminated washdown.

12.10.5 There are eight sumps in the CHB. These sumps and corresponding trenching are not used as secondary containment but are used to collect moisture or precipitation (storm water runoff) that may drip from the overpack exterior. One independent sump is in the lifts' Mechanical Equipment Room; one independent sump is in each lift; and one independent sump is in the first floor transition area. There are two sumps on the second floor transition area. There is one sump in the west container storage area and one independent sump in the west combined processing unloading dock area. Three of the sumps (west container storage area and the two on the second floor transition area) contain operator-activated pumps and dual piping. They may be emptied into a waste transport truck. The floors in the unloading areas are sloped 0.125 inch/linear foot to a trench that runs north-south.

12.10.6 All trenches and sumps incorporate the MDB standard details of metal liner and an epoxy based coating and are constructed in accordance with the MDB specifications.

12.10.7 In the UPA, secondary containment pallets may be used for the storage of munitions. A secondary containment pallet is a box with a grate on top that supports and elevates the containers while allowing drainage to the box below. In addition to commercially available secondary containment pallets, the TOCDF may also use secondary containment pallets that are fabricated to be part of the rocket trolleys and projectile stand in the UPA. For the storage of projectiles, rockets, and mortars, each secondary containment pallet has a minimum of 12 gallons of secondary containment capacity. Therefore, the facility may store up to 120 gallons of containerized waste per secondary containment pallet and be in compliance with R315-8-9.6(b)(3). The maximum number of containers that can be stored on any secondary containment pallet is as follows:

| Munition Type | Agent | Volume (gal/container) | Maximum # of Containers per Pallet | Maximum Gallons per Pallet |
|---|---|---|---|---|
| 155mm Projectile | H | 1.1 | 96 | 106 |
| | GB | 0.72 | 96 | 69 |
| | VX | 0.75 | 96 | 72 |
| M55 Rocket | GB | 1.2 | 30 | 36 |
| | VX | 1.2 | 30 | 36 |
| 4.2-inch Mortar | HD | 0.6 | 192 | 115 |
| | HT | 0.5 | 192 | 96 |
| 105mm Projectile | GB | 0.2 | 96 | 19 |

12.10.7.1 Ton containers may also be stored on secondary containment pallets provided that no more than two ton containers are stored on a pallet and the capacity of the secondary containment pallet exceeds the volume of one ton container as listed in Table 12-4. Spray tanks and MK-116 bombs may also be stored on secondary containment pallets provided that no more than one container is stored on a pallet and the capacity of the secondary containment pallet exceeds the volume of the container as listed in Table 12-4. For all munitions and bulk containers, the TOCDF will ensure that the munition(s) or pallet(s) of munitions do not extend over the edge of the secondary containment pallet so that any leaks will be captured by the secondary containment pallet.

12.10.8 The grate on top of the secondary containment pallet elevates the containers and therefore prevents contact between the containers and any accumulated liquids as required by R315-8-9.6(b)(2). As required by R315-8-9.6(b)(4), run-on into the secondary containment pallets is prevented by the wall height of each pallet. The secondary containment pallets are free of cracks and gaps, impervious, and will contain spills until removed as required by R315-8-9.6(b)(1). As required by R315-8-9.6(b)(5), accumulated liquid will be removed from the secondary containment systems in as timely a manner as necessary to prevent overflow of the secondary containment pallet. The liquid removed will be managed as a hazardous waste.

12.10.9 M23 mines may also be stored on the secondary containment pallets described above. Each mine contains 1.2 gallons of agent and the maximum that will be stored per pallet is 18 mines. Mines may either be directly stored on the secondary containment pallets or they may be stored in mine drums that are placed on the pallets.

12.10.10 In addition to the secondary containment pallets described above, the TOCDF may use steel secondary containment pallets. Each of these steel pallets will have a minimum capacity of 2.2 gallons and the maximum allowed per pallet is 18 mines.

12.10.11 In addition to the quantity of mines described above, MCCs may be stored on either type of pallet.

12.10.12 Tertiary containment is provided by the CHB and the UPA for non-leaking munitions and containers. In the event that the integrity of the munitions or bulk containers and ONCs, secondary containment pallets, or overpacks is violated, the CHB and the UPA will serve to facilitate collection and control of agent and decontamination solutions.

12.10.13 For leaking munitions and bulk containers stored in overpacks, the UPA can provide secondary containment. This room consists of coated, concrete floors that slope to sumps and are surrounded by perimeter curbs/walls. This room is enclosed within the CHB/MDB Transition Structure and MDB, and the perimeter curbs are a minimum of six inches high (i.e., minimum height at door openings). Therefore, as required by R315-8-9.6(b)(4), run-on into the secondary containment systems is prevented.

12.10.14 The floors are constructed of reinforced concrete, are coated, and are maintained free of cracks and gaps, when the UPA is used as secondary containment, as required by R315-8-9.6(b)(1). Likewise, the sumps are constructed of epoxy-coated welded steel and are surrounded by a cast-in-place, coated, external concrete liner. Therefore, the sumps are free of cracks and gaps, impervious, and can contain leaks and spills until removed as required by R315-8-9.6(b)(1). As required by R315-8-9.6(b)(5), the accumulated liquid will be removed (e.g., via pumps associated with the sumps, etc.) from the secondary containment system in as timely manner as necessary to prevent overflow of the secondary containment system. The liquid removed will be managed as a hazardous waste.

12.10.15 The floors are sloped (1/16 inch per foot minimum) to provide proper drainage of the secondary containment systems and the containers will be elevated (i.e., stored on conveyors) to prevent contact with accumulated liquid. Therefore, the containers will be protected from accumulated liquids as required by R315-8-9.6(b)(2).

12.10.16 There are six sumps associated with the UPA (identified by the associated pump numbers as SDS-PUMP-101, 102, 103, 104, 199, and 200). Each of these sumps is classified as a RCRA sump and is part of the secondary containment system for the container storage that occurs in this room. Each sump has a maximum allowable capacity of 89 gallons. The secondary containment capacity required by R315-8-9.6(b)(3) and the available secondary containment capacity provided by these sumps is summarized in Table 12-5. As can be seen in this table, the secondary containment systems have sufficient capacity to satisfy the requirements of R315-8-9.6(b)(3).

**Table 12-5**

**UPA Secondary Containment Capacity**

<table>
<tr><td rowspan="2">Storage Area</td><td colspan="2">Required Per R315-8-9.6(b)(3)</td><td rowspan="2">Available Capacity [1] (Gallons)</td></tr>
<tr><td>Description</td><td>Capacity (Gallons)</td></tr>
<tr><td rowspan="3">UPA</td><td colspan="2">The larger of the following:</td><td rowspan="3">6 sumps x 89 gal/sump =534 gallons</td></tr>
<tr><td>10% of volume of all containers; or</td><td>297.2 (agent GB); or 342.4 (agent VX); or 288 (mustard).<br>or</td></tr>
<tr><td>Volume of largest container</td><td>190.2 x 2=380.4 (ref: VX ton container in Table 12-4)</td></tr>
<tr><td colspan="4">1. The available capacity shown above is limited to the secondary containment capacity provided by the sumps in these areas. The floor slabs and perimeter curbs/walls will also function as secondary containment. Therefore, the actual available secondary containment capacity will be significantly larger than the values identified above.</td></tr>
</table>

12.11 **Secondary Containment System Design and Operation (ECV and UPMC)**

12.11.1 The ECV and UPMC rooms provide secondary containment for the containers stored in these areas. These rooms consist of coated, concrete floors that slope to sumps and are surrounded by perimeter curbs/walls. These rooms are enclosed within the MDB and the perimeter curbs are a minimum of four (4) inches high (i.e., minimum height at door openings). Therefore, as required by R315-8-9.6(b)(4), run-on into the secondary containment systems is prevented.

12.11.2 The floors are constructed of reinforced concrete and are coated and are therefore free of cracks and gaps, impervious, and can contain leaks and spills until removed as required by R315-8-9.6(b)(1). Likewise, the sumps (i.e., intermittent collection units) are constructed of epoxy-coated welded steel and are surrounded by a cast-in-place coated external concrete liner. Therefore, the sumps are free of cracks and gaps, impervious, and can contain leaks and spills until removed as required by R315-8-9.6 (b)(1). As required

by R315-8-9.6 (b)(5), the accumulated liquid will be removed (e.g., via pumps associated with the sumps, etc.) from the secondary containment system in as timely manner as necessary to prevent overflow of the secondary containment system. The liquid removed will be managed as a hazardous waste unless the TOCDF can demonstrate, in accordance with R315-2-3(d), that the solid waste collected/removed is not a hazardous waste.

12.11.3 The floors are sloped (1/4 inch per foot minimum) to provide proper drainage of the secondary containment systems and the containers will be elevated to prevent contact with accumulated liquid. Therefore, the containers will be protected from accumulated liquids as required by R315-8-9.6 (b)(2).

12.11.4 There are three sumps associated with the ECV (identified by the associated pump numbers as SDS-PUMP-108, 109, and 110) and 10 sumps associated with the UPMC (identified by the associated pump numbers as SDS-PUMP-112 through 118, 169, 174, and 189). Each of these sumps serves as an intermittent collection unit and as part of the secondary containment systems for the container storage that occurs in these rooms. Each sump has a maximum allowable capacity of 89 gallons. The secondary containment capacity required by R315-8-9.6 (b)(3) and the available secondary containment capacity provided by these sumps is summarized in Table 12-6. As can be seen in this table, the secondary containment systems have sufficient capacity to satisfy the requirements of R315-8-9.6 (b)(3).

**Table 12-6**
**ECV and UPMC Secondary Containment Capacity**

| **Storage Area** | **Required Per** R315-8-9.6 **(b)(3)** | | **Available Capacity [1](Gallons)** |
|---|---|---|---|
| | **Description** | **Capacity (Gallons)** | |
| ECV | The larger of the following: | | 3 sumps x 89 gal/sump = 267 gallons |
| | 10% of volume of All containers; or | 68 (agent GB); or 83.3 (agent VX); or 67.1 (mustard).or | |
| | Volume of largest container | 190.2 (ref: VX ton container in Table 12-4) | |
| UPMC | The larger of the following: | | 10 sumps x 89 gal/sump = 890 gallons |
| | 10% of volume of all Containers; or | 385.5 (agent GB); or 436.6 (agent VX); or 414.5 (mustard).or | |
| | Volume of largest Container | 190.2 (ref: VX ton container in Table 12-4) | |

1. The available capacity shown above is limited to the secondary containment capacity provided by the sumps in these areas. The floor slabs and perimeter curbs/walls will also function as secondary containment. Therefore, the actual available secondary containment capacity will be significantly larger than the values identified above.

12.12 **Secondary Containment System Design and Operation (S-2 Warehouse)**

12.12.1 Secondary containment for containers with free liquids will be provided by portable secondary containment pallets. A secondary containment pallet is a portable box with a grate on top that supports and elevates the containers while allowing drainage to the box below. One secondary containment pallet has a deck surface area sufficient to store four 55-gallon drums and has a minimum of 60 gallons of secondary containment capacity. Therefore, the facility could store four 55-gallon containers per pallet (single-stacked) or eight 55-gallon containers per pallet (double-stacked) and be in compliance with R315-8-9.6 (b)(3). In fact, the facility could store up to 600 gallons of containerized waste per secondary containment pallet, provided that the volume of the largest container is equal to or less than 60 gallons, and be in compliance with R315-8-9.6 (b)(3). However, due to stability concerns, 55-gallon drums (or larger containers) will not be stacked more than two high.

12.12.2 The grate on top of the secondary containment pallet elevates the containers and therefore prevents contact between the containers and any accumulated liquids as required by R315-8-9.6 (b)(2). As required by R315-8-9.6 (b)(4), run-on into the secondary containment pallets is prevented by the wall height of each pallet. The secondary containment pallets are constructed of high density polyethylene (HDPE), carbon steel painted with an epoxy based coating, or carbon steel fitted with an HDPE liner. The secondary containment pallets are therefore free of cracks and gaps, impervious, and can contain spills until removed via built-in drains as required by R315-8-9.6 (b)(1). As required by R315-8-9.6 (b)(5), accumulated liquid will be removed from the secondary containment systems in as timely manner as necessary to prevent overflow of the secondary containment pallet. The liquid removed will be managed as a hazardous waste.

12.12.3 As allowed by R315-8-9.6 (c), the S-2 Warehouse will also be used to store containerized waste that do not contain free liquids. As per the requirements of R315-8-9.6 (c), secondary containment is not required for these containers. These containers will be elevated (e.g., wooden pallets, railroad ties, grating, etc.) to prevent contact with accumulated liquid. The amount of accumulated liquid (e.g., run-on) encountered will be minimal since the storage area is enclosed by a building.

12.12.4 Generally, the nature of the processes that produce the site-generated waste preclude the formation of free liquids. For example, before storage in the S-2 Warehouse, the parts and equipment (e.g., metal scrap, etc.) will have been treated in the DFS or MPF. These processes do not involve the capture or formation of liquids which could potentially be categorized as free liquids. Therefore, the parts and equipment from these processes will not contain free liquids and this information regarding the nature of the process that produces the parts and equipment is adequate information to demonstrate compliance with R315-3-2.6(b)(1) (i.e., no testing would be necessary to prove the absence of free liquids for parts and equipment). The same is true for dunnage (e.g., wood) and therefore, no testing would be required to prove the absence of free liquids for dunnage.

12.12.5 To confirm the absence of free liquids for other site-generated wastes and allow storage without secondary containment pallets, facility personnel will obtain a representative sample of the waste and analyze for free liquids as specified in Attachment 2 (Waste Analysis Plan). Corresponding analytical results, that indicate the absence of free liquids, will be sufficient to satisfy the requirements of R315-3-2.6(b)(1).

12.12.6 The S-2 Warehouse building is 100 feet long, 40 feet wide, and 24 feet high. The maximum storage capacity would be reached if four rows of pallets were placed length-wise in the building. Each row would contain twenty-two pallets and a 2.5 foot (minimum) aisle space would be present on either side of each row of pallets. An aisle space approximately 10 feet wide would be available for operation of the forklift. This configuration enables the storage of 88 secondary containment pallets (4 rows x 22 pallets/row = 88 secondary containment pallets). Therefore, 704 55-gallon drums[5] could be stored in the S-2 Warehouse assuming double stacking of containers (88 secondary containment pallets x 8 containers/pallet = 704 containers). The storage capacity of the S-2 Warehouse would be 38,720 gallons (704 containers x 55 gallon/container = 38,720 gallons).

12.13 **Secondary Containment System Design and Operation (TMA Container Storage Area And TMA Airlock/Decon Area)**

12.13.1 The TMA Container Storage Area is located within the Category A section of the TMA. The Category A section of the TMA provides secondary containment and has plan view dimensions of approximately 44'-5" long by 28'-6" wide.

12.13.2 The TMA Container Storage Area is located within the MDB and is surrounded by a minimum 6-3/4 inch (0.56 feet) high curb/wall (curb is part of the TMA (Category A) perimeter wall). Therefore, as required by R315-8-9.6 (b)(4), run-on into the secondary containment system is prevented.

12.13.3 The floor is constructed of reinforced concrete and is coated with epoxy based coating and is therefore free of cracks and gaps, impervious, and can contain spills until removed as required by R315-8-9.6 (b)(1). As required by R315-8-9.6 (b)(5), the accumulated liquid will be removed (e.g., via pumps associated with TMA sumps, etc.) from the secondary containment system in as timely manner as necessary to prevent overflow of the secondary containment system. The liquid removed will be managed as a hazardous waste.

12.13.4 There are two sumps associated with the TMA Container Storage Area. The secondary containment capacity provided by the curb/floor and the sumps equals approximately 736 cubic feet. As noted elsewhere, the TOCDF will also store agent-contaminated equipment (e.g., pumps, valves, etc.) and parts (e.g., pipe, fittings, etc.) in the TMA and will unpack overpacks that contain leaking munitions in the TMA. These activities will occupy secondary containment capacity in addition to any unruptured containers stored in the TMA Container Storage Area. These activities will not take place in aisle space (e.g., equipment and parts will not be placed in the 2.5 feet minimum aisle, etc.) associated with the container storage.

12.13.5 The maximum volume of items that occupy secondary containment capacity (i.e., building column, stairs, portable equipment, unruptured containers, etc.) equals approximately 554 cubic feet. Therefore, there is approximately 182 cubic feet of secondary containment capacity available (736 - 554 = 182 cubic feet). The required

[5] Although 55-gallon drums have been used to calculate the storage capacity of the S-2 Warehouse, various sizes of containers may be stored in the S-2 Warehouse.

amount of secondary containment capacity is 10% of the volume of the containers or approximately 30 cubic feet ((0.10 x 55 gallon/drum X 40 drums)/7.48 gal/$ft^3$ = 30 cubic feet). Therefore, as required by R315-8-9.6 (b)(3), the secondary containment system has sufficient capacity to contain 10% of the volume of containers or the volume of the largest container.

12.13.6 The floor is sloped (1/4 inch per foot minimum) to provide proper drainage of the secondary containment system and the containers will be elevated (e.g., pallets, grating, etc.) to prevent contact with accumulated liquid. Therefore, the containers will be protected from accumulated liquids as required by R315-8-9.6 (b)(2).

12.13.7 The storage capacity[6] for the TMA Container Storage Area is equal to 2,200 gallons (40 drums x 55 gallons/drum = 2,200 gallons).

12.13.8 The TMA Airlock is designated as a Category C room within the TMA. The TMA Decon Area is designated as a Category A/B room within the TMA. The TMA Airlock and TMA Decon Area provide secondary containment. The TMA Airlock has plan view dimensions of approximately 25'3" long by 25' wide. The TMA Decon Area has plan view dimensions of approximately 31'2" long by 25' wide.

12.13.9 The TMA Airlock/Decon Area is located within the MDB and is surrounded by a minimum 6-3/4 inch (0.56 feet) high curb/wall (curb is part of the TMA (Category C and Category A/B) perimeter walls). Therefore, as required by R315-8-9.6 (b)(4), run-on into the secondary containment system is prevented.

12.13.10 The floor is constructed of reinforced concrete and is coated with epoxy based coating and is therefore free of cracks and gaps, is impervious, and can contain spills until removed as required by R315-8-9.6 (b)(1). As required by R315-8-9.6 (b)(5), the accumulated liquid will be removed (e.g., via pumps associated with TMA sumps, etc.) from the secondary containment system in as timely manner as necessary to prevent overflow of the secondary containment system. The liquid removed will be managed as a hazardous waste.

12.13.11 There is one sump associated with the TMA Airlock and one sump is associated with the TMA Decon Area. The secondary containment capacity provided by the curb/floor and the sump equals approximately 328 cubic feet for the TMA Airlock and approximately 402 cubic feet for the TMA Decon Area.

12.13.12 The maximum volume of items that occupy secondary containment capacity (i.e., building columns, the decon vestibule, etc.) in the TMA Airlock is 13 cubic feet and for the TMA Decon Area is 54 cubic feet. Therefore, there is approximately 315 cubic feet of secondary containment capacity available in the Airlock Area (328 - 13 = 315 cubic feet) and approximately 348 cubic feet of secondary containment capacity available in the TMA Decon Area (402 - 54 = 348 cubic feet). The required amount of secondary containment capacity for each area is the volume of the largest container (the volume of two ton containers) or approximately 51 cubic feet ((190.2 gallon/ton container X 2 ton

[6] Although 55-gallon drums have been used to calculate the storage capacity of the TMA Container Storage Area, various sizes of containers may be stored in the TMA Container Storage Area.

containers/ONC X 1 ONC)/7.48 gal/$ft^3$ = 51 cubic feet). Therefore, as required by R315-8-9.6 (b)(3), each secondary containment system has sufficient capacity to contain 10% of the total volume of the containers or the volume of the largest container.

12.13.13 The floor is sloped (1/4 inch per foot minimum in the Decon Area and 1/16 inch per foot minimum in the Airlock) to provide proper drainage of the secondary containment system and the overpacks will be elevated to prevent contact with accumulated liquid. Therefore, the containers will be protected from accumulated liquids as required by R315-8-9.6 (b)(2).

12.13.14 The storage capacity[7] for the TMA Airlock/Decon Area is equal to 761 gallons (2 ONCs x 2 ton containers/ONC x 190.2 gallons/ton container = 760.4 gallons).

## 12.14 Requirements for Ignitable, Reactive, or Incompatible Wastes in Containers

12.14.1 No incompatible wastes shall be stored at the CHB or TMA. Only munitions and bulk containers with one chemical agent will be processed at any given time in the CHB or TMA. Containers with incompatible waste shall not be placed on a secondary containment pallet in the S-2 warehouse at the same time. Therefore, incompatible wastes, or incompatible wastes and materials will not be placed in the same container or on the same secondary containment pallet. The chemical agents and associated explosives to be temporarily stored in the Container Handling Building, UPA, ECV, and UPMC are reactive. The wastes to be stored in the TMA may be reactive. The site-generated waste to be stored in the S-2 warehouse may be reactive or ignitable. All containers holding reactive or ignitable wastes will be located at least 50 feet from the facility property line.

[7] A maximum of 2 ONCs will be allowed in storage at any given time in the TMA Airlock/Decon Area.